

2902076-1_ST25.txt
SEQUENCE LISTING

<110> The University of York

<120> Expansion Polypeptides

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<140> 10/573,245

<141> 2006-03-23

<150> PCT/GB04/04058

<151> 2004-08-23

<160> 24

<170> PatentIn version 3.4

<210> 1

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<212> DNA

<213> Craterostigma plantagineum

<220>

<221> CDS

<222> (1)..(783)

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1				5					10					15		

acc	agc	agc	agc	cat	ttt	gcg	cgc	gcg	tat	tat	ggc	ggc	gat	ggc	ggc	96
Thr	Ser	Ser	Ser	His	Phe	Ala	Arg	Ala	Tyr	Tyr	Gly	Gly	Asp	Gly	Gly	
			20					25					30			

tgg	acc	gat	gcg	cat	gcg	acc	ttt	tat	ggc	ggc	agc	gat	gcg	agc	ggc	144
Trp	Thr	Asp	Ala	His	Ala	Thr	Phe	Tyr	Gly	Gly	Ser	Asp	Ala	Ser	Gly	
		35					40					45				

acc	atg	ggc	ggc	gcg	tgc	ggc	tat	ggc	aac	ctg	tat	agc	cag	ggc	tat	192
Thr	Met	Gly	Gly	Ala	Cys	Gly	Tyr	Gly	Asn	Leu	Tyr	Ser	Gln	Gly	Tyr	
	50					55					60					

ggc	acc	aac	acc	gcg	gcg	ctg	agc	acc	gcg	ctg	ttt	aac	aac	ggc	ctg	240
Gly	Thr	Asn	Thr	Ala	Ala	Leu	Ser	Thr	Ala	Leu	Phe	Asn	Asn	Gly	Leu	
65				70						75					80	

agc	tgc	ggc	agc	tgc	ttt	gaa	att	aaa	tgc	gcg	agc	agc	att	agc	ggc	288
Ser	Cys	Gly	Ser	Cys	Phe	Glu	Ile	Lys	Cys	Ala	Ser	Ser	Ile	Ser	Gly	
				85					90					95		

ggc	ggc	aaa	tgg	tgc	ctg	ccg	ggc	ggc	agc	att	acc	gtg	acc	gcg	acc	336
Gly	Gly	Lys	Trp	Cys	Leu	Pro	Gly	Gly	Ser	Ile	Thr	Val	Thr	Ala	Thr	
			100					105					110			

aac	ttt	tgc	ccg	ccg	aac	aac	gcg	ctg	ccg	aac	aac	gcg	ggc	ggc	tgg	384
Asn	Phe	Cys	Pro	Pro	Asn	Asn	Ala	Leu	Pro	Asn	Asn	Ala	Gly	Gly	Trp	
		115					120					125				

tgc	aac	ccg	ccg	ctg	cag	cat	ttt	gat	ctg	agc	cag	ccg	gtg	ttt	cag	432
Cys	Asn	Pro	Pro	Leu	Gln	His	Phe	Asp	Leu	Ser	Gln	Pro	Val	Phe	Gln	

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140

130

135

cat His 145	att Ile	gcg Ala	cag Gln	tat Tyr	cgc Arg 150	gcg Ala	ggc Gly	att Ile	gtg Val	ccg Pro 155	gtg Val	agc Ser	tat Tyr	cgc Arg	cgc Arg 160	480
gtg Val	ccg Pro	tgc Cys	cgc Arg	cgc Arg 165	cgc Arg	ggc Gly	ggc Gly	att Ile	cgc Arg 170	ttt Phe	acc Thr	att Ile	aac Asn	ggc Gly 175	cat His	528
agc Ser	tat Tyr	ttt Phe	aac Asn 180	ctg Leu	gtg Val	ctg Leu	att Ile	acc Thr 185	aac Asn	gtg Val	ggc Gly	ggc Gly	gcg Ala 190	ggc Gly	gat Asp	576
gtg Val	cat His	gcg Ala 195	gtg Val	agc Ser	att Ile	aaa Lys	ggc Gly 200	gcg Ala	acc Thr	acc Thr	gat Asp 205	tgg Trp	cag Gln	ccg Pro	atg Met	624
agc Ser	cgc Arg 210	aac Asn	tgg Trp	ggc Gly	cag Gln	aac Asn 215	tgg Trp	cag Gln	agc Ser	aac Asn	gcg Ala 220	aac Asn	ccg Pro	aac Asn	ggc Gly	672
cag Gln 225	cgc Arg	ctg Leu	agc Ser	ttt Phe	aaa Lys 230	gtg Val	acc Thr	acc Thr	agc Ser	gat Asp 235	ggc Gly	cgc Arg	acc Thr	ctg Leu	gtg Val 240	720
agc Ser	aac Asn	aac Asn	gtg Val	gcg Ala 245	ccg Pro	ccg Pro	aac Asn	tgg Trp	agc Ser 250	ttt Phe	ggc Gly	cag Gln	acc Thr	ttt Phe 255	gcg Ala	768
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 <213> Craterostigma plantagineum
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Thr	Ser	Ser	Ser 20	His	Phe	Ala	Arg	Ala 25	Tyr	Tyr	Gly	Gly	Asp 30	Gly	Gly
Trp	Thr	Asp 35	Ala	His	Ala	Thr	Phe 40	Tyr	Gly	Gly	Ser	Asp 45	Ala	Ser	Gly
Thr	Met 50	Gly	Gly	Ala	Cys	Gly 55	Tyr	Gly	Asn	Leu	Tyr 60	Ser	Gln	Gly	Tyr
Gly 65	Thr	Asn	Thr	Ala	Ala 70	Leu	Ser	Thr	Ala	Leu 75	Phe	Asn	Asn	Gly	Leu 80
ser	cys	Gly	ser	cys	Phe	Glu	Ile	Lys	cys	Ala	ser	ser	Ile	ser	Gly

Gly Gly Lys Trp Cys Leu Pro Gly Gly Ser Ile Thr Val Thr Ala Thr
100 105 110

Asn Phe Cys Pro Pro Asn Asn Ala Leu Pro Asn Asn Ala Gly Gly Trp
115 120 125

Cys Asn Pro Pro Leu Gln His Phe Asp Leu Ser Gln Pro Val Phe Gln
130 135 140

His Ile Ala Gln Tyr Arg Ala Gly Ile Val Pro Val Ser Tyr Arg Arg
145 150 155 160

Val Pro Cys Arg Arg Arg Gly Gly Ile Arg Phe Thr Ile Asn Gly His
165 170 175

Ser Tyr Phe Asn Leu Val Leu Ile Thr Asn Val Gly Gly Ala Gly Asp
180 185 190

Val His Ala Val Ser Ile Lys Gly Ala Thr Thr Asp Trp Gln Pro Met
195 200 205

Ser Arg Asn Trp Gly Gln Asn Trp Gln Ser Asn Ala Asn Pro Asn Gly
210 215 220

Gln Arg Leu Ser Phe Lys Val Thr Thr Ser Asp Gly Arg Thr Leu Val
225 230 235 240

Ser Asn Asn Val Ala Pro Pro Asn Trp Ser Phe Gly Gln Thr Phe Ala
245 250 255

Gly Ala Gln Phe Asn
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<222> (1)..(657)

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Ala Thr Phe Tyr Gly Gly Gly Asp Ala Ser Gly Thr Met Gly Gly Ala
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tgc ggc tat ggc aac ctg tat agc acc ggc tat ggc acc aac acc gcg
Page 3

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Cys	Gly	Tyr	Gly	Asn	Leu	Tyr	Ser	Thr	Gly	Tyr	Gly	Thr	Asn	Thr	Ala		
			20					25					30				
gcg	ctg	agc	acc	gcg	ctg	ttt	aac	aac	ggc	ctg	acc	tgc	ggc	gcg	tgc	144	
Ala	Leu	Ser	Thr	Ala	Leu	Phe	Asn	Asn	Gly	Leu	Thr	Cys	Gly	Ala	Cys		
		35					40					45					
tat	gaa	ctg	acc	tgc	aac	aac	gat	ccg	cgc	ggc	tgg	tgc	ctg	agc	ggc	192	
Tyr	Glu	Leu	Thr	Cys	Asn	Asn	Asp	Pro	Arg	Gly	Trp	Cys	Leu	Ser	Gly		
	50					55					60						
acc	att	atg	gtg	acc	gcg	acc	aac	ttt	tgc	ccg	ccg	aac	ccg	agc	ctg	240	
Thr	Ile	Met	Val	Thr	Ala	Thr	Asn	Phe	Cys	Pro	Pro	Asn	Pro	Ser	Leu		
65					70					75					80		
ccg	aac	gat	aac	ggc	ggc	tgg	tgc	aac	ccg	ccg	cgc	cag	cat	ttt	gat	288	
Pro	Asn	Asp	Asn	Gly	Gly	Trp	Cys	Asn	Pro	Pro	Arg	Gln	His	Phe	Asp		
				85					90					95			
ctg	gcg	gaa	ccg	gcg	ttt	ctg	cag	att	gcg	cag	tat	aaa	gcg	ggc	att	336	
Leu	Ala	Glu	Pro	Ala	Phe	Leu	Gln	Ile	Ala	Gln	Tyr	Lys	Ala	Gly	Ile		
			100					105					110				
gtg	ccg	gtg	aac	tat	cgc	cgc	gtg	ccg	tgc	cag	aaa	aaa	ggc	ggc	att	384	
Val	Pro	Val	Asn	Tyr	Arg	Arg	Val	Pro	Cys	Gln	Lys	Lys	Gly	Gly	Ile		
		115					120					125					
cgc	ttt	acc	att	aac	ggc	cat	agc	ttt	ttt	aac	ctg	gtg	ctg	gtg	acc	432	
Arg	Phe	Thr	Ile	Asn	Gly	His	Ser	Phe	Phe	Asn	Leu	Val	Leu	Val	Thr		
	130					135					140						
aac	gtg	ggc	ggc	gtg	ggc	gat	gtg	cat	agc	gtg	agc	att	aaa	ggc	agc	480	
Asn	Val	Gly	Gly	Val	Gly	Asp	Val	His	Ser	Val	Ser	Ile	Lys	Gly	Ser		
145					150					155					160		
aac	ggc	ggc	tgg	cag	ccg	ctg	agc	cgc	aac	tgg	ggc	cag	aac	tgg	cag	528	
Asn	Gly	Gly	Trp	Gln	Pro	Leu	Ser	Arg	Asn	Trp	Gly	Gln	Asn	Trp	Gln		
				165					170					175			
agc	aac	agc	tat	ctg	aac	ggc	cag	agc	ctg	agc	ttt	cag	gtg	acc	acc	576	
Ser	Asn	Ser	Tyr	Leu	Asn	Gly	Gln	Ser	Leu	Ser	Phe	Gln	Val	Thr	Thr		
			180					185					190				
agc	gat	ggc	cgc	acc	gtg	acc	agc	tat	gat	gtg	gcg	ccg	cgc	ggc	tgg	624	
Ser	Asp	Gly	Arg	Thr	Val	Thr	Ser	Tyr	Asp	Val	Ala	Pro	Arg	Gly	Trp		
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cag	ttt	ggc	cag	acc	ttt	gaa	ggc	ggc	cag	ttt						657	
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Cys Gly Tyr Gly Asn Leu Tyr Ser Thr Gly Tyr Gly Thr Asn Thr Ala
 20 25 30

Ala Leu Ser Thr Ala Leu Phe Asn Asn Gly Leu Thr Cys Gly Ala Cys
 35 40 45

Tyr Glu Leu Thr Cys Asn Asn Asp Pro Arg Gly Trp Cys Leu Ser Gly
 50 55 60

Thr Ile Met Val Thr Ala Thr Asn Phe Cys Pro Pro Asn Pro Ser Leu
 65 70 75 80

Pro Asn Asp Asn Gly Gly Trp Cys Asn Pro Pro Arg Gln His Phe Asp
 85 90 95

Leu Ala Glu Pro Ala Phe Leu Gln Ile Ala Gln Tyr Lys Ala Gly Ile
 100 105 110

Val Pro Val Asn Tyr Arg Arg Val Pro Cys Gln Lys Lys Gly Gly Ile
 115 120 125

Arg Phe Thr Ile Asn Gly His Ser Phe Phe Asn Leu Val Leu Val Thr
 130 135 140

Asn Val Gly Gly Val Gly Asp Val His Ser Val Ser Ile Lys Gly Ser
 145 150 155 160

Asn Gly Gly Trp Gln Pro Leu Ser Arg Asn Trp Gly Gln Asn Trp Gln
 165 170 175

Ser Asn Ser Tyr Leu Asn Gly Gln Ser Leu Ser Phe Gln Val Thr Thr
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Ser Asp Gly Arg Thr Val Thr Ser Tyr Asp Val Ala Pro Arg Gly Trp
 195 200 205

Gln Phe Gly Gln Thr Phe Glu Gly Gly Gln Phe
 210 215

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ggc Gly	gcg Ala	tgc Cys	ggc Gly 20	tat Tyr	ggc Gly	aac Asn	ctg Leu	tat Tyr 25	agc Ser	cag Gln	ggc Gly	tat Tyr	ggc Gly 30	acc Thr	aac Asn	96
acc Thr	gcg Ala 35	gcg Ala	ctg Leu	agc Ser	acc Thr	acc Thr	ctg Leu 40	ttt Phe	aac Asn	aac Asn	ggc Gly	ctg Leu 45	gcg Ala	tgc Cys	ggc Gly	144
agc Ser 50	tgc Cys	tat Tyr	cag Gln	gtg Val	cgc Arg	tgc Cys 55	gaa Glu	ggc Gly	ggc Gly	ccg Pro	aaa Lys 60	tgg Trp	tgc Cys	gtg Val	cgc Arg	192
ggc Gly 65	ggc Gly	gat Asp	cgc Arg	att Ile 70	att Ile	acc Thr	gtg Val	acc Thr	gcg Ala 75	acc Thr	aac Asn	ttt Phe	tgc Cys	ccg Pro 80	ccg Pro	240
aac Asn	tat Tyr	gcg Ala	ctg Leu	gcg Ala 85	aac Asn	gat Asp	aac Asn	ggc Gly	ggc Gly 90	tgg Trp	tgc Cys	aac Asn	ccg Pro	ccg Pro 95	cgc Arg	288
cag Gln	cat His	ttt Phe	gat Asp 100	atg Met	gcg Ala	cag Gln	ccg Pro	gcg Ala 105	ttt Phe	gtg Val	cgc Arg	att Ile	gcg Ala 110	cat His	tat Tyr	336
cgc Arg	gcg Ala	ggc Gly 115	att Ile	gtg Val	ccg Pro	att Ile	agc Ser 120	tat Tyr	cgc Arg	cgc Arg	gtg Val	agc Ser 125	tgc Cys	gtg Val	aaa Lys	384
aaa Lys 130	ggc Gly	ggc Gly	att Ile	cgc Arg	ctg Leu	acc Thr 135	att Ile	aac Asn	ggc Gly	cat His	agc Ser 140	tat Tyr	ttt Phe	aac Asn	ctg Leu	432
gtg Val 145	ctg Leu	gtg Val	agc Ser	aac Asn	gtg Val 150	ggc Gly	ggc Gly	agc Ser	ggc Gly	gat Asp 155	gtg Val	cat His	gcg Ala	gtg Val	tgg Trp 160	480
att Ile	aaa Lys	ggc Gly	agc Ser	ggc Gly 165	ggc Gly	ggc Gly	ccg Pro	tgg Trp	cag Gln 170	gcg Ala	atg Met	acc Thr	cgc Arg	aac Asn 175	tgg Trp	528
ggc Gly	cag Gln	aac Asn	tgg Trp 180	cag Gln	agc Ser	aac Asn	agc Ser	tat Tyr 185	ctg Leu	gat Asp	ggc Gly	cag Gln	agc Ser 190	ctg Leu	agc Ser	576
ttt Phe	att Ile	gtg Val 195	cgc Arg	gcg Ala	ggc Gly	gat Asp	ggc Gly 200	cgc Arg	acc Thr	gtg Val	acc Thr	gcg Ala 205	aac Asn	gab Xaa	att Ile	624
gtg Val 210	ccg Pro	cgc Arg	ggc Gly	tgg Trp	cag Gln	ttt Phe 215	ggc Gly	cag Gln	acc Thr	ttt Phe	gaa Glu 220	ggc Gly	ccg Pro	cag Gln	ttt Phe	672

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<222> (207)..(207)

<223> The 'Xaa' at location 207 stands for Glu, or Asp.

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20 25 30

Thr Ala Ala Leu Ser Thr Thr Leu Phe Asn Asn Gly Leu Ala Cys Gly
35 40 45

Ser Cys Tyr Gln Val Arg Cys Glu Gly Gly Pro Lys Trp Cys Val Arg
50 55 60

Gly Gly Asp Arg Ile Ile Thr Val Thr Ala Thr Asn Phe Cys Pro Pro
65 70 75 80

Asn Tyr Ala Leu Ala Asn Asp Asn Gly Gly Trp Cys Asn Pro Pro Arg
85 90 95

Gln His Phe Asp Met Ala Gln Pro Ala Phe Val Arg Ile Ala His Tyr
100 105 110

Arg Ala Gly Ile Val Pro Ile Ser Tyr Arg Arg Val Ser Cys Val Lys
115 120 125

Lys Gly Gly Ile Arg Leu Thr Ile Asn Gly His Ser Tyr Phe Asn Leu
130 135 140

Val Leu Val Ser Asn Val Gly Gly Ser Gly Asp Val His Ala Val Trp
145 150 155 160

Ile Lys Gly Ser Gly Gly Gly Pro Trp Gln Ala Met Thr Arg Asn Trp
165 170 175

Gly Gln Asn Trp Gln Ser Asn Ser Tyr Leu Asp Gly Gln Ser Leu Ser
180 185 190

Phe Ile Val Arg Ala Gly Asp Gly Arg Thr Val Thr Ala Asn Xaa Ile
195 200 205

Val Pro Arg Gly Trp Gln Phe Gly Gln Thr Phe Glu Gly Pro Gln Phe
210 215 220

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